

APPLICATION FOR UNITED STATES LETTERS PATENT
FOR
DOLL'S CLOTHING AND PLAY SET

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Cross References to Related Application

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5 This application is a divisional of application serial number 09/065,119, filed April 23, 1998, titled DOLL'S CLOTHING. This application is a continuation-in-part of copending application serial number 09/065,119 filed April 23, 1998, titled DOLL'S CLOTHING and bearing Attorney Docket No. 1020.001, the entire disclosure including drawings of the copending application is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

10 The present invention relates to a doll's garment, a method for the manufacture thereof and to a play set comprising a doll and at least one garment therefor.

Description of the Related Art

15 Traditionally, doll's clothes are stitched from fabric. This is impracticable for making clothes for dolls smaller than about 4 cm in height, due to the difficulty experienced in forming the stitches. Even for larger dolls, stitching may be difficult for small garment features.

20 Additionally, fabric clothing may not be as elastic as alternative materials, causing difficulties in donning garments on dolls, and therefore, limiting the degree to which a garment may be shaped to the doll form. Furthermore, fabric clothing is less durable than alternative materials.

Flexible or elastic articles not designed for doll clothing, generally have limitations which render them unsuitable for doll clothing. For example, U.S. Patent No. 2,283,238 discloses a method of manufacturing sanitary elastic sheaths by a dipping process. The sheaths are comprised of bags having elastic bands attached at one end and may be used for items such as finger cots, thumb guards, rubber gloves and breast nipple sheaths. The item itself is not molded

to fit to the shape of the form which it covers and requires the elastic band to secure the sheath in place. The bag-like nature of the articles does not allow for openings for arms and legs as is necessary in doll's clothing.

5 A molded latex article is disclosed in U.S. Patent No. 3,206,533 for use as a girdle. The article is formed with a mesh-like network of multiple small holes to permit free breathing of the skin on which it is placed. An item such as this would not be suitable for doll's clothing primarily because of its perforated nature.

U.S. Patent No. 4,297,153 discloses a method for making doll clothing and doll house accessories by molding a plastic film and thereafter attaching decorative elements. The elements are attached by moistening the film to which the element is to be attached. Providing detail in this manner may be difficult and time consuming, especially for small features. It also introduces a weakness in the article diminishing durability. Additionally, the method may limit the sizes and types of detail which may be added to the articles.

15 Various proposals have therefore been advanced for making articles simulating doll's clothing from alternative materials. For example, U.S. Patent No. 4,414,774 describes fabricating such articles from plastic materials. Due to their degree of rigidity, the articles lack realism and appear bulky. In addition, once the doll is clothed, its limbs cannot be moved so that the articles are unsuitable for dolls with articulated limbs.

20 U.S. Patent No. 4,763,940 discloses a finger mounted document handling aid. The aid is tubular and comprises a plurality of generally parallel longitudinal cuts to permit enhanced flexibility. Such an article would be difficult to adapt to realistic-looking doll's clothing because of the longitudinal cuts required for adequate flexibility. Furthermore, without the cuts the article may not be flexible enough to bend at joints of an articulated doll.

Therefore, there is a need for doll's clothing that can be realistically dressed on, adapted and fitted to the doll. Additionally, there is a need for garments that have sufficient flexibility to bend where the doll bends. Furthermore, there is a need for doll's garments made of a material suitable as to appearance for doll's clothing, and that may easily be manipulated by children.

5 Furthermore, it is desirable to manufacture doll's clothing with these characteristics in a size appealing to and fun for a wide age range of children.

SUMMARY OF THE INVENTION

A doll's garment is provided that is durable and easily fitted to a doll and which may be more easily manufactured than a fabric garment. The garment may be an article of clothing or a skin that transforms the character of the doll. Both realistic and fanciful garment designs are possible according to embodiments of the invention. Also included is a play set comprising a doll and at least one garment.

One embodiment of the invention is a doll's seamless garment which is adapted to be dressed, fitted and be removed in a life-like manner from a doll having a height in the range of

15 above 8 cm (3.1 in) to about 30 cm (11.8 in), wherein the doll is bendable at least in part. The garment is molded from an elastomeric material or rubber having an average modulus of elasticity of less than 1MN/m². The garment wall thickness is preferably in the range of about 1mm (.039 in) to about 3mm (.118 in). Optionally, the garment comprises at least one integrally molded feature.

20 (In another embodiment the garment is a skin.) The skin is adapted to be dressed, fitted and removed from a doll to transform the doll into a different character or object. The skin is molded in at least one part from an elastomeric material. The elastomeric material selected from

the group consisting of one of the following: ethylene vinyl acetate copolymer, styrene-butadiene-styrene, styrene-isoprene-styrene, styrene-diene, styrene-isoprene-butylene block copolymers containing mineral oil, branched styrene copolymer, styrene butadiene rubber, styrene-butadiene triblock rubber, styrene-isoprene-styrene linear block polymer, styrene-butadiene radial block copolymer, butadiene-styrene copolymer rubber and equivalent elastomeric materials. Preferably, the garment has a wall thickness from 1 to 3mm and preferably the material has an average modulus of elasticity of less than 1MN/m².

Yet another embodiment of the invention is a play set comprising, in cooperative combination, a doll donned and fitted with a garment as described above.

The garments of the invention are constructed of materials unlike those found in prior art doll clothing allowing sufficient flexibility to bend where the doll bends. The garments can be fitted or removed in a lifelike manner on any size dolls and are easily manipulated by even young children. Additionally, an articulated doll maintains its flexibility when clothed in the garment.

The invention will now be described, by way of example only, with reference to the accompanying drawings.

DETAILED DESCRIPTION OF THE DRAWINGS

FIGS. 1A - 1G depict a doll's garments according to embodiments of the invention.

FIGS. 2A -2F depict a doll according to an embodiment of the invention.

FIGS. 3A-3F depict the doll of FIGS. 2A-2F dressed in the garments of FIGS. 1A-1G respectively.

FIGS. 4A-4D depict a male doll with a removable head according to an embodiment of the invention and the male doll fitted in garments according to an embodiment of the invention.

FIGS. 5A- 5E depict garments having slits according to an embodiment of the invention and the doll of FIGS. 2A-2F fitted in garments having slits.

FIGS. 6A-6C depict a doll and garment according to embodiments of the invention and the doll fitted in the garment.

5 FIGS. 7A-7C depict a doll and skin according to an embodiment of the invention and a doll fitted with the skin.

FIGS. 8A-8C depict a doll and skin according to another embodiment of the invention and a doll fitted with the skin.

DETAILED DESCRIPTION OF THE INVENTION

10 The present invention relates to an interchangeable doll's garment made preferably from an elastomeric material. The material may be selected from ethylene vinyl acetate copolymer (EVA) and any of the polymers sold under the registered trademark "Kraton" by Shell Chemical Co. (such as optionally hydrogenated) styrene-butadiene-styrene, styrene-isoprene-styrene, styrene-diene, styrene-isoprene and styrene-butadiene block copolymers, styrene-ethylene-
15 butylene block copolymer containing mineral oil, branched styrene copolymer, styrene-butadiene rubber, styrene-butadiene triblock rubber, styrene-isoprene-styrene linear block polymer, styrene-butadiene radial block copolymer, butadiene-styrene-copolymer rubber, synthetic rubber) or equivalent materials.

20 Preferably, the average modulus of elasticity of the material is less than about 1MNm^{-2} . More preferably, the 100% modulus of elasticity, measured at a standard test speed of about 500mm/min, is between about 120 and 350 kNm^{-2} , and still more preferably between 240 and 280 kNm^{-2} . The 300% modulus of elasticity may lie between about 440 and 490 kNm^{-2} . Such

values provide a material from which garments with sufficient realism and desired features can be molded, whilst avoiding increased difficulty molding detail and in removal of the molded garments from the mold, which the inventors have found to occur with highly elastic polymers. The nature of the elastomeric material allows a child to manipulate the garments to dress and undress the doll with minimum of frustration.

The wall thickness of the garment is preferably from about 1mm (.039 in) to about 3mm (.118 in). However, garments may have wall thicknesses of any dimension that allow the garment to be dressed on, fitted to and removed from the doll or over other garments. The material elasticity and garment wall thickness provide durability to enable garments to be donned on and removed from a doll repeatedly. Desired realism and flexibility may also be achieved with materials having these properties. Garments formed from materials having these properties may be manipulated by young children with minimum frustration that accompanies use of some dolls' clothing, even when fitted to dolls of about 4 to 32cm.

One embodiment of the present invention provides a method of manufacturing a doll's garment, comprising molding an elastomeric material or rubber. Preferably, the garment is injection molded, but it may alternatively be dip molded. However, any method by which elastomeric or rubber material having the parameters described herein can be formed into the garments described herein is within the spirit and scope of the invention.

Another embodiment of the invention provides a play set comprising a doll having at least one articulated body part and at least one garment for the doll, the garment(s) being made from an elastomeric material or rubber. The play set may also include garments that are clipped to the doll or to other garments.

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The doll of the invention is preferably bendable at least in part by being articulated at isolated locations or by having continuously flexible parts. The degree of movement may go beyond that which is realistic or natural, so that a child may dress and undress the doll easily. Doll parts may be positioned and repositioned, with and without garments provided thereon.

5 An articulated doll may be jointed at the shoulders, hips, waist, neck, head, ankles, wrists, elbows and/or knees. It is also possible for the doll to be articulated at points where joints are not naturally located to provide additional flexibility to facilitate dressing and undressing the doll. The junctions of articulated parts may be exposed or, for a more realistic appearance, they may have a continuous coating that conceals the joint while allowing desired movement. Any combination of articulated parts is within the spirit and scope of the invention.

10 A continuously flexible doll may be continuously flexible throughout or only have some continuously flexible portions. A continuously flexible portion is a bendable portion in which there is no definable joint. Such flexibility may be achieved by utilization of a material having the desired bendability or by a combination of flexible materials. For example, the doll may comprise a flexible elastomeric material or rubber body having metal wire therein to provide durability and/or to enable the doll to maintain desired positions. The wire or a wire-like material may be throughout the body or within only a portion of the body. In one embodiment the doll comprises a combination of continuously flexible portions and articulated parts. For example, the doll may have continuously bendable arms and legs, and a head articulated at the neck.

20 The clothing may be designed so that it is possible to turn the particular garment inside-out. This has the advantage of still being able to be donned, but with new colors and/or

wrapped in
covered

decoration and/or detailing. Such a feature would be applicable to, for instance, hats, jackets and pants. It also could be applied to the other coverings discussed, such as second skins.

To the elastic clothing there can be added fabric, by stitching the fabric on to the elastic portion. The elastic molded clothing can be decorated with actual frills, and other fabric portions to make new clothing designs.

1 2 3 4 5 A particular embodiment of the invention includes the doll having one or more body parts removable at the point of articulation. FIG 4D depicts a male doll with a removable head.

Removable body parts allow garments of many design dimensions to be easily dressed on and removed from the doll, particularly for smaller children. For example a garment having a neckline diameter smaller than or substantially similar to the head diameter will be more easily fitted on the doll if the head is removed. Removable arms, legs, feet and hands will similarly facilitate dressing and undressing of the doll.

To further facilitate dressing of and removing the garment from the doll an embodiment of the invention includes garments having one or more slits as depicted in FIGS. 5B and 5D. The slit(s) is preferably in the back of the garment. However, slits may be placed anywhere in the garment that would facilitate dressing and undressing of the doll. A slit having a length in the range of about 10% to about 50% of the length of the garment is preferred. Lengths shorter than this may not adequately enhance the ease by which the doll may be dressed or undressed. Slits longer than this may cause the garment to gape open. Preferably the slit(s) has a closed end forming a radius to prevent tearing. However, any reinforcing method may be used that does not adversely limit the flexibility of the garment. FIGS. 5A and 5C depict the doll of FIGS. 2A-2F fitted in garments having slits.

It should be understood however that these embodiments do not imply that all garments having small dimensions, such as neckline or cuff diameters, cannot be fitted on the doll without removal of a body part or incorporation of a slit in the garment.

Parent Application Serial No. 09/065,119 provides a preferred embodiment of garments adapted to dolls having a size of less than 8 cm (3.1 in). However, the doll may be any size but is likely to be found most appealing to children when in the range of about preferably 4 cm (1.6 in) to about 30 cm (11.8 in). Dolls in the range of above 8 cm (3.1 in) to about 32cm (12.6 in) may be easiest for small children to dress and undress. Dolls in the range of about 29 cm (11.4 in) to about 32 cm (12.6 in) are generally suitable for imaginative play involving repeatedly changing garments. Dolls of the following approximate height/width ratios are suitable for children of a wide age range: for female dolls 4.3:1, 4.1:1, 3.9:1 and 3.8:1 wherein, for example, the dolls may have heights of about 29.2cm (11.5 in), 9.5cm (3.7 in), 18cm (7.1 in) and 4.6cm (1.8 in), respectively; for male dolls about 3:1, 3.1:1, and 2.9:1 wherein, for example, the dolls may have heights of 7.2cm (2.8 in), 8.5cm (3.3in) and 13cm (5.1 in), respectively. These proportions and/or sizes are generally more realistic than popular dolls on the market today. Additionally, dolls of these proportions and/or sizes with flexible garments adapted to be dressed thereon, fitted thereto and removed therefrom are not generally seen in today's market and will be a fun change for children. All embodiments of the invention are applicable to dolls of any shape and size, and further to male, female, human, nonhuman and fanciful figures. Fanciful figures may include, but are not limited to, superheros, monsters, robots and cartoon characters. Dolls may be formed having sculpted hair or rooted hair. Although rooted hair requires additional manufacturing process steps, it provides a more realistic doll.

FIGS. 1A to 1G show various injection-molded garments for a doll approximately 4cm in height. However, the garments may be fabricated for use with dolls of any size. More specifically, FIG. 1A shows a dress, FIG. 1B a pair of dungarees, FIG. 1C a gown, FIG. 1D a jacket and a skirt, FIG. 1E a vest and skirt, FIG. 1F a jacket and a pair of slacks and FIG. 1G a hat and a coat. The garments may further include T-shirts, swim wear, pants, pajamas, suits, shirts, coats, shorts, cloaks, capes, uniforms, hats, shoes, helmets, armor and scarfs. Garments may also be those from any of the following categories: athletic wear, evening wear, uniforms, casual wear, sleep wear, business attire, school wear or costumes. The garments may be styled for a particular type or character of doll. For example, a film star, recording star or teenage doll may have garments reflecting such identities. FIGS. 6A-6C depict a glamorous doll and a garment designed to reflect that which a glamorous character, such as a film star would wear. Garments may comprise a combination of two or more articles which would typically exist as separate articles. For example, as shown in FIG. 4B, a sock and shoe may be molding to form a single garment.

15 The garments are molded from elastomeric materials or rubber and are therefore noticeably flexible and elastic, which provides a high degree of realism as compared with prior art garment-simulating articles. The realism may be further enhanced by decorating the garment using paint, varnish, glitter, or other coatings compatible with the elastomeric or rubber material. Some examples of other coatings include color-change or glow-in-the-dark coatings. In a particular example, the garments are molded from clear Kraton and painted with a paint of which the modulus of elasticity is compatible with that of the Kraton. Additionally, details may be provided by the molding process. Integrally molded details provide greater garment durability compared to garments having details applied after their formation. Attached features may

separate from a garment, especially if the garment is stretched as would be the case when donning an elastic-type garment on a doll. Integrally molded details stretch with the garment and therefore, will not undergo stress that may lead to separation. Details may include but are not limited to, items found on clothing such as belts, buttons and collars, animal features such as horns or beaks, or robot components such as lights and buttons. It will be understood by those skilled in the art that molding processes will allow nearly any type of detail imaginable to be molded integrally with the garment.

FIGS. 2A and 2F show a three-dimensional doll which is approximately 4cm in height. The doll is assembled from injection-molded plastics components and is articulated at the shoulders, hips and knees.

FIGS. 3A to 3F show the doll of FIGS. 2A to 2F after fitting of the garments shown in FIGS. 1A and 1F respectively. Due to their elasticity, the garments can be fitted in a life-like way, i.e., jackets are donned "arms first" and dresses, trousers and skirts are stepped into. However, upper garments may be more easily donned over the feet due to the diameter of the doll's head and the usual positioning of the arms. Once clothed, the doll's limbs can still be moved. The garments are easily interchanged, even by younger children. One garment can be donned over another, for example a jacket over a dress or a vest over a shirt. Garments not generally worn on top of one another may be layered to provide a child with additional fun and creative opportunities. For example, athletic wear may be donned under formal wear or vice-versa.

In addition, the term "garment" as used in this specification should be understood to include any flexible article which can be fitted to the external surface of a doll or on top of other garments, including second skins. Skins are garments that transform a doll into a different

character or into an object. For example, skins may resemble other animals, creatures or objects such as rocks, flames, bones or the like.

FIGS. 7A-7C and FIGS. 8A-8C depict human dolls and garments in the form of skins to transform the dolls into a robot and a werewolf character, respectively. Both the doll and the skin may have any real or imaginary character. For example, an animal doll may be fitted with a human skin or superhero skin or a human doll may be fitted with an animal skin or a skin depicting an object. Skins may also be donned one on top of another or over or under clothing-like garments. For example, pants and tops may be placed over an animal skin, an animal or object skin may be placed over a clothed doll, or a human doll may be dressed with two or more skins. The possibilities are numerous and promote a child's use of his/her imagination and allow a child to delight in the surprise of exposing a hidden form, outfit, character or object. The skins may be designed to cover some or all of the doll, depending on the transformation desired. Skins may conform to a specific doll shape or may be of ample size and shape to fit a variety of doll forms.

While the invention has been described in what is presently considered to be preferred embodiments, many variations and modifications will become apparent to those skilled in the art. Accordingly, it is intended that the invention not be limited to specific illustrative embodiments but be interpreted within the full spirit and scope of the appended claims.